PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Brian Edward BROOKER, et al. Docket No.: M02B148

Examiner: Kelly Jo BEKKER Serial No. 10/525,189

Group Art Unit: 1781 371 Date: November 7, 2005

3687 Title: MANUFACTURE OF ICE CREAM Conf. No.:

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November 2, 2010

(date)

APPELLANTS' BRIEF UNDER 37 C.F.R. § 41.37

To the Honorable Commissioner For Patents:

This is an appeal to the Board of Patent Appeals and Interferences (the "Board") from the final rejection set forth in the Office Action mailed July 1, 2010.

In accordance with 37 C.F.R. § 41.31. Appellants electronically filed the Notice of Appeal via EFS-Web on October 1, 2010.

The present appeal is of pending claims 23-39 and 41.

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

Table of Contents

| 1. | Real Party in Interest | 3 |
|-----|--|---|
| 2. | Related Appeals and Interferences | |
| 3. | Status of Claims | |
| 4. | Status of Amendments | |
| 5. | Summary of Claimed Subject Matter | |
| 6. | Grounds for Rejection to be Reviewed on Appeal | |
| 7. | Argument | |
| 8. | Claims Appendix | |
| 9. | Evidence Appendix | |
| 10. | Related Proceedings Appendix | |
| | | |

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

1. Real Party in Interest

The owner of the present patent application is The BOC Group Limited. formerly known as The BOC Group, plc.

The real party in interest is The BOC Group Limited, formerly known as The BOC Group plc, a subsidiary of Linde Aktiengesellschaft, also known as Linde AG.

U.S. Serial No.: 10/525,189

Applicant: Prior Edward PROCKER and Docket No. M02B148

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

2. Related Appeals and Interferences

In accordance with 37 C.F.R. § 41.37(c)(1)(ii), Appellants hereby inform the Board that there are no other prior pending appeals, interferences, or judicial proceedings known to Appellants, Appellants' legal representative. or Assignee which may be related to, directly affect or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

3. Status of Claims

Claims 1-22 were canceled and new claims 23-43 were added by a preliminary amendment filed contemporaneously with the application on February 22, 2005. Claims 42-43 were canceled, without prejudice. in Appellants' Response filed on November 17, 2008. Claim 40 was canceled, without prejudice, in Appellants' Response filed on December 18, 2009. Claims 23-39 and 41 are currently under final rejection and constitute the claims on appeal.

In accordance with 37 C.F.R. § 41.37(viii), appealed claims 23-39 and 41 appear in the Claim Appendix below.

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

4. Status of Amendments

A Final Office Action was mailed by the Office on July 1, 2010.

No amendments to pending claims 23-29 and 41 have been filed with the Office subsequent to the mailing date of the Final Office Action.

U.S. Serial No.: 10/525,189

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

5. Summary of Claimed Subject Matter

Independent claim 23 is directed to a method of making ice cream, comprising blending in the presence of at least one emulsifier an aqueous ice cream precursor phase with precrystallised particles of edible fat which each contain a multiplicity of individual crystals so as to form a dispersion, and gasifying and freezing the dispersion so as to form an ice cream, in which the particles of edible fat are precrystallised cryogenically, wherein the dispersion is gasified and frozen without being subjected to homogenisation or ageing. Specification at least at page 2, lines 13-18, 20-21 and 26.

Dependent claim 41 is directed to a method according to independent claim 23, wherein the dispersion is provided at below ambient temperature for gasification and freezing. Specification at least at page 2, lines 17-18, and page 6, lines 22-24.

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

6. Grounds of Rejection to be Reviewed on Appeal

A. The 35 U.S.C. § 103(a) rejection of claims 23-33, 37, 39 and 41 as unpatentable over EP 0 147 483 to Delany, et al., in view of U.S. Patent Application Publication No. 2001/0038872 A1 to Brooker.

- B. The 35 U.S.C. § 103(a) rejection of claims 34-36 and 38 as unpatentable over EP 0 147 483 to Delany, et al. in view of U.S. Patent Application Publication No. 2001/0038872 A1 to Brooker, further in view of U.S. Patent No. 4,012,533 to Jonas.
- C. The 35 U.S.C. § 112. second paragraph rejection of claim 41 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellants regard as the invention.

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

7. Argument

A. Claims 23-33, 37, 39 and 41

Claims 23-33, 37, 39 and 41 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over EP 0 147 483 to Delany, et al. ("Delany") in view of U.S. Patent Application Publication No. 2001/0038872 A1 to Brooker ("Brooker").

The present claims are directed to a method of manufacturing ice cream. The present method is vastly different from the traditional method of making ice cream as it eliminates the need to go through the homogenization and ageing steps of the traditional ice cream manufacturing process. The currently claimed ice cream manufacturing process eliminates the need for homogenization and ageing steps by forming an initial dispersion of aqueous ice cream ingredients with fat crystals that have been crystallized before combining with the aqueous ice cream ingredients. As discussed in greater detail below, the feature of combining a precrystallized fat, rather than an uncrystallized fat, with the aqueous ice cream ingredients to form the initial ice cream precursor dispersion, and the feature of eliminating the homogenization and ageing steps from the process, are not even remotely disclosed, taught or suggested by the prior art of record.

The Office alleges at page 3 of the Office Action dated January 19, 2010, which has been incorporated into the final Office Action, that "[a]s Delany teaches that the fat is crystallized prior to gasification and freezing. Delany teaches that the fat is precrystallized, i.e., crystallized before." Applicants respectfully submit that the Office is using the term "precrystallised" in a manner which is inconsistent with how that term is used in the present application. The Office's improper use of the term "precrystallised" is in contravention of 35 U.S.C. § 112, which provides by implication that an applicant will be his or her own lexicographer. *See Philips v. AWH Corp.*, 415 F.3d 1303, 1316, 75 U.S.P.Q.2d 1321, 1329 (Fed Cir. 2005) (en banc): *Cook Biotech Inc. v. Acell, Inc.*, 460 F.3d 1365, 1374, 79 U.S.P.Q.2d 1865, 1871 (Fed. Cir. 2006).

Applicants respectfully submit that Delany <u>does not</u> teach the use of precrystallized fat particles to form the initial dispersion of ice cream ingredients in the manufacture of ice cream. as disclosed and claimed in the present application. As used throughout the present application, "precrystallised" refers to fat that is crystallized <u>prior to</u> blending with the aqueous ice cream

U.S. Serial No.: 10/525,189

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

precursor phase in the presence of an emulsifier in order to form the initial dispersion. *See* page 2. lines 13-24 of the present application. By direct contrast, Delany clearly and unequivocally teaches mixing water, uncrystallized fat, protein and an emulsifier to form an oil-in-water emulsion. This emulsion is then subjected to homogenizing and ageing. Thus. Delany teaches that the fat is only crystallized after the uncrystallized fat is combined with the other ice cream ingredients to form a dispersion.

The term "precrystallised" is not disclosed anywhere in Delany. Instead, Delany specifically teaches that crystallisation occurs during ageing of the mix of frozen food product ingredients, which is standard in traditional ice cream making processes. Thus, Appellants' use of the term "precrystallised" in the present application means that the fat is crystallized <u>prior to</u> combining with the other ice cream ingredients to create an emulsion.

This interpretation of the term "precrystallised" is confirmed in the present application, at page 5, lines 17-22:

A positive advantage of the method according to the invention is that the disperse fat phase (i.e. the precrystallised particles of edible fat) can be prepared and conveniently stored as a stable powder until it is needed and then added either a) to the prepared aqueous phase or b) to other, dry ingredients of the ice cream mix followed by the addition of water and high speed mixing.

For the above reasons, a person of ordinary skill in the art would understand that the term "precrystallised" means that the crystallized fat particles are blended with the other ice cream ingredients to form an initial dispersion of ingredients. Very simply, Appellants blend crystallized fat particles with the other ice cream ingredients. By contrast, Delany blends uncrystallized fat with other ice cream ingredients, and the fat in Delany is only crystallized during the subsequent homogenization and ageing steps. The crystallization in Delany cannot, therefore, be understood to mean "precrystallized" as that term is used in the present application.

The Office further alleges, at page 4 of the recent final Office Action, that "it is noted that the features upon which applicant relies (i.e., a definition of precrystallisation which defines the step to which the crystallization is prior to) are not recited in the rejected claim(s)." Appellants respectfully submit that the term "precrystallized" is clearly described in the present application, as discussed above, to mean that the fat is crystallized prior to blending with the other ice cream ingredients to form an aqueous ice cream precursor phase. MPEP § 2111.02(IV) states that

U.S. Serial No.: 10/525.189

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

"[t]he specification should also be relied on for more than just explicit lexicography or clear disavowal of claim scope to determine the meaning of a claim term when applicant acts as his or her own lexicographer; the meaning of a particular claim term may be defined by implication, that is, according to the usage of the term in the context in the specification. *See Phillips v. AWH Corp.*. 415 F.3d 1303, 75 USPQ2d 1321 (Fed. Cir. 2005) (*en banc*); and *Vitronics Corp. v. Conceptronic Inc.*, 90 F.3d 1576, 1583, 39 USPQ2d 1573, 1577 (Fed. Cir. 1996)."

Docket No. M02B148

Further, it is stated in claim 23 that the method of making ice cream comprises "blending in the presence of at least one emulsifier an aqueous ice cream precursor phase with precrystallized particles of edible fat". Therefore, it is clear from the plain language of claim 23 that the edible fat must be crystallized prior to blending with the other ingredients to form the aqueous ice cream precursor phase. Applicants respectfully submit that further defining language need not be explicitly repeated in the claim.

As discussed in Appellants' previous Responses, Delany teaches a traditional ice cream making process, employing the usual process steps of forming an oil-in-water emulsion of ice cream ingredients (including uncrystallized fat) and subjecting the emulsion to the typical homogenization, pasteurization, ageing and hardening steps. Delany also discloses the criticality of the traditional homogenization and ageing steps and the near impossibility of altering the traditional process. For example, Delany, at page 7, lines 15-19, discloses that "[i]t has quite unexpectedly been found that the selection and processing steps [of homogenization and aging] of the fat component during the preparation of the aforementioned aerated frozen food products are critical elements in achieving the unique stability of this invention" (emphasis added). Delany, at page 1, lines 29-34, further discloses (emphasis added) that "rigid consumer acceptance criteria, regulatory standards and the complex nature of the interactions which produce a satisfactory product make it extremely difficult to reformulate such aerated frozen products in an attempt to provide improvements."

Despite the clearly stated <u>criticality</u> of the steps of fat selection, homogenization and ageing to achieving the <u>unique stability</u> provided to frozen food products by the invention of Delany, the Office alleges that these steps may simply be ignored or eliminated. Because of the criticality disclosed by Delany of the steps of selection, homogenization and ageing, the <u>unique stability</u> of the products of Delany are likely to be sacrificed if the critical steps are

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

circumvented. This conclusion is supported by the Delany teaching that it is "extremely difficult" to alter aerated frozen products to "provide improvements". A person of ordinary skill in the art, upon reading Delany, would not be motivated to eliminate the homogenization and ageing steps, because of the criticality of the steps of Delany as well as the teaching in Delany which discloses that it is extremely difficult to improve aerated frozen products.

The Office also argues. at page 10 of the final Office Action, that "the statement of Delany is referring to the formulation and not the method". Appellants respectfully submit that the Office has mischaracterized Delany. As discussed above. Delany discloses that ""[i]t has quite unexpectedly been found that the selection and processing steps . . . are critical elements in achieving the unique stability of this invention" (emphasis added). Therefore, it is clear to a person of ordinary skill in the art that the process steps themselves are absolutely critical to the unique stability of the result of Delany, not merely the formulation.

The Office further argues, at page 10 of the final Office Action, that "the process claims of Delany in view of Brooker would have been obvious and maintained any criticality as the function of the process remain the same". Appellants respectfully submit that the Office has again mischaracterized Delany. As discussed in detail above, the steps of the method of Delany are disclosed to be critical to the unique stability of the ice cream of Delany. If the fat of Delany were replaced by the fat of Brooker, the critical process steps of homogenization and ageing of Delany would be unnecessary or redundant, and a person of skill in the art would have no expectation of success in such a modification because of the criticality of the steps of Delany.

For all of the above reasons, there is no teaching or suggestion in either Delany or Brooker that combining the references would provide "substantially the same or an improved product", because, according to the disclosure of Delany, one having ordinary skill in the art would conclude that it is unlikely that the uniquely stable product of Delany will be produced without performing the critical steps disclosed by Delany. The only teaching or suggestion that using a "precrystallised" fat in making a frozen food product such as ice cream would be desirable or successful is in the present application. Appellants respectfully submit that the Office continues to use improper hindsight reasoning, as discussed in more detail below.

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

Appellants also respectfully submit that Delany and Brooker are not properly combinable, because they each teach away from any combination with the other. MPEP § 2145(X)(D)(2) states that "[i]t is improper to combine references where the references teach away from their combination. *In re Grasselli*. 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983)". MPEP at 2100-168. Delany discloses the criticality of using a liquid fat and the steps of selection of the fat, homogenization and ageing. Delany stresses that these process steps are required to achieve the unique product stability which is the result of the process of Delany. Brooker teaches using a precrystallized fat in non-ice cream applications. Combining Delany with Brooker would render homogenization and ageing obsolete, likely resulting in a frozen food product lacking in the unique stability demanded by Delany. Therefore, Delany teaches away from any combination with Brooker, and vice versa.

MPEP § 2142.03 states that "[t]he prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)." Thus, if there is no reasonable expectation of success, a *prima facie* case of obviousness cannot be established. As discussed above, a person of ordinary skill in the art, upon reading Delany, would not look for ways to eliminate the homogenization and ageing steps or to otherwise improve Delany, because of the criticality of the homogenization and ageing steps of Delany as well as the express teaching in Delany that it is extremely difficult to improve aerated frozen products. Therefore, a person of ordinary skill in the art would not reasonably expect success by removing Delany's critical homogenization and ageing process steps. The Office has merely offered a conclusion without technical support that using the precrystallized fat of Brooker would achieve the superior stability disclosed in Delany.

Further, in *DuPuy Spine*, *Inc.* v. *Medtronic Sofamor Danek*, *Inc.*, the Federal Circuit stated that

[a]Ithough predictability is a touchstone of obviousness, the predictable result discussed in <u>KSR</u> refers not only to the expectation that the prior art elements are capable of being physically combined, but also that the combination would have worked for its intended purpose. <u>KSR Int'l CO. v. Teleflex Inc.</u>, 127 S. Ct. 1727, 1739-40 (2007). . . . An inference of nonobviousness is especially strong where the prior art's teachings undermine the very reason being proffered as to why a person of ordinary skill would have combined the known elements.

U.S. Serial No.: 10/525,189

10/525,189 Docket No. M02B148

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

567 F.3d 1314, 2008-1240, -1253, -1401, slip opinion at pp. 13-14 (Fed. Cir. 2009). Appellants respectfully submit that the teachings of Delany undermine the very reason that the Office alleges that the references would be combined, namely that Delany could be made more efficient by the combination with Brooker. As discussed above, Delany expressly discloses that the process steps of homogenization and ageing are critical to the "unique" ice cream product achieved by the process of Delany. Because Delany teaches the criticality of the steps of the process, it teaches against the elimination of the homogenization and ageing steps, even if such modification may render the process "more efficient".

For all of the above reasons. Appellants respectfully submit that the Office has failed to state a *prima facie* case of obviousness.

The Office alleges, at page 5 of the final Office Action, that "[i]t must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971)."

As discussed above, Delany does not teach or suggest utilizing a "precrystallised" fat (as that term is used in the present application), because it teaches the criticality of the steps of selecting a particular liquid fat, and homogenizing and ageing the particular fat under certain conditions based upon the particular fat selected. Brooker does not disclose that the precrystallized fat disclosed therein can be utilized in frozen food products or ice cream manufacturing processes. The Office is merely selecting certain process steps of Delany, while ignoring aspects that Delany states are critical, and combining it with the crystallized fat of Brooker to arrive at the present § 103 rejection. Therefore, any teaching or suggestion of the potential success of using a "precrystallised" fat in a frozen food product or ice cream is gleaned only from the present application. There cannot be a clearer case of using improper hindsight reasoning in rejecting the present claims.

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

Further, Appellants respectfully submit that it is impermissible within the framework of 35 U.S.C. § 103 to pick and choose from any single reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. *Lubrizol Corp. v. Exxon Corp.*, 896 F. Supp. 302, 322, 7 USPQ2d 1513, 1527 (N.D. Ohio 1988) ("It is not permissible to pick and choose only so much of any given reference as will support a given position and ignore the reference in its totality."). Applicants respectfully submit that the allegations found at pages 4-9 of the final Office Action improperly pick and choose those elements of Delany and Brooker which support the Office's 35 U.S.C. § 103 rejection, and do not consider the disclosure of Delany as a whole, which emphasizes the criticality of the homogenization and ageing process steps of Delany to achieving the "unique" product of Delany.

Appellants submit that claim 23 is not taught or suggested by the combination of Delany and Brooker, for the above reasons. Therefore, claims 24-33, 37 and 39-41, which depend from claim 23, are also not taught or suggested. *See In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). ("If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious." MPEP § 2143.03 at page 2100-142.) For the above reasons, Applicants respectfully request that the rejection of claims 23-33, 37 and 39-41 be withdrawn.

B. Claims 34-36 and 38

Claims 34-36 and 38 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Delany in view of Brooker, further in view of U.S. Patent No. 4.012,533 to Jonas ("Jonas"). The improper combination of Delany and Brooker, is discussed in great detail above. That discussion is incorporated by reference in its entirety in Appellants' traversal of the § 103 rejection of claims 34-36 and 38 over the combination of Delany, Brooker and Jonas. Jonas merely discloses suitable edible emulsifiers for making a whippable topping emulsion. As discussed above, Delany and Brooker teach away from their combination, as the combination results from improper hindsight reasoning and impermissible picking and choosing. The selection of a particular emulsifier for inclusion in Delany based on the desired final product proportions does not cure the improper combination Delany and Brooker. Because the

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

combination of Delany and Brooker fails, as a matter of law, the combination of Delany, Brooker and Jonas fails as well.

Appellants further respectfully submit that claim 23 is not taught or suggested by the combination of Delany, Brooker and Jonas. Appellants submit that, since claim 23 is not taught or suggested by the combination of Delany. Brooker and Jonas, claims 34-36 and 38, which depend from claim 23, are also not taught or suggested. *See In re Fine*. Appellants respectfully request that the rejection of claims 34-36 and 38 be reversed.

C. Claim 41

Claim 41 has been rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellants regard as the invention.

The Office alleges that "the term 'ambient temperature' is a relative term which renders the claim indefinite. . . . the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention." The Office specifically alleges that "it is unclear as to what step the temperature would be applicable: for example, in an ice cream making process ingredients are mixed at 50-60C, cooled at 4C, and frozen at -30 to -40C . . . ".

Claim 41 recites the feature "wherein the dispersion is provided at below ambient temperature for gasification and freezing." The term "ambient temperature" is a widely known and accepted scientific term that refers to "the temperature of the environment or surroundings in which an experiment is conducted or in which physical or chemical events occur". Therefore, Appellants respectfully submit that it is clear that the ambient temperature recited in claim 41 refers to the temperature of the ice cream making process just prior to or during gasification and freezing, and one of ordinary skill in the art of ice cream manufacturing would be reasonably apprised of the scope of the claim. Appellants respectfully request that this rejection be reversed.

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

Conclusion

Appellants have addressed the instant rejections presented in the Final Office Action with respect to independent claim 23 and dependent claim 41 in particular, and have distinguished the applied references as discussed above. It is therefore deemed unnecessary to address the Office's specific allegations regarding the remaining dependent claims. Appellants therefore traverse these allegations, and do not concur with the same either explicitly or implicitly by not refuting each individually.

Appellants submit that the remarks presented hereinabove overcome all the existing 35 U.S.C. §§ 112 and 103(a) rejections of all pending claims. Appellants respectfully request that the Board reverse the final rejections of these claims, and to require the Office to issue a formal notice of allowability of claims 23-39 and 41 over the art of record.

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Date: November 2, 2010

U.S. Serial No.: 10/525,189

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

8. Claims Appendix

In accordance with 37 C.F.R. § 41.37 (c)(1)(ix), the claims on appeal are as follows:

1.-22. (Canceled)

23. (Previously Amended) A method of making ice cream, comprising blending in the presence

Docket No. M02B148

of at least one emulsifier an aqueous ice cream precursor phase with precrystallised particles of

edible fat which each contain a multiplicity of individual crystals so as to form a dispersion, and

gasifying and freezing the dispersion so as to form an ice cream, in which the particles of edible fat

are precrystallised cryogenically, wherein the dispersion is gasified and frozen without being

subjected to homogenisation or ageing.

24. (Previously Presented) The method according to claim 23, wherein the cryogenic

precrystallisation is performed by forming the edible fat into fine particles in molten state and

contacting the fine particles with a cryogen.

25. (Previously Presented) The method according to claim 24, wherein a spray of liquid cryogen

is directed at the fine particles of edible fat in molten state.

26. (Previously Presented) The method according to claim 24, wherein the cryogen is liquid

nitrogen.

27. (Previously Presented) The method according to claim 23, wherein the precrystallised

particles of edible fat take the form of a globule comprising a mass of crystals of fat with entrapped

pockets of oil.

28. (Previously Presented) The method according to claim 23, wherein the particles of edible fat

in the dispersion have a size less than 30µm.

29. (Previously Presented) The method according to claim 28, wherein at least some of the

precrystallised particles of edible fat have a size less than 10µm.

30. (Previously Presented) The method according to claim 28, wherein at least some of the

precrystallised particles of edible fat have a size of 5µm or less.

18

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

31. (Previously Presented) The method according to claim 23, wherein the edible fat is

pasteurised before being precrystallised.

32. (Previously Presented) The method according to claim 23, wherein the aqueous ice cream

precursor phase is pasteurised before being blended with the precrystallised particles of edible fat.

33. (Previously Presented) The method according to the claim 23, wherein an emulsifier is

introduced into particles of edible fat before said particles are precrystallised.

34. (Previously Presented) The method according to claim 33, wherein the emulsifier is a

lipophilic emulsifier.

35. (Previously Presented) The method according to claim 34, wherein the lipophilic emulsifier

is a saturated monoglyceride.

36. (Previously Presented) The method according to claim 34, wherein the saturated

monoglyceride is a glycerol monostearate.

37. (Previously Presented) The method according to claim 23, wherein the edible fat is selected

from the group consisting of milk fat, anhydrous milk fat, at least one milk fat fraction, a

hydrogenated vegetable oil, a hard tropical fat, and a hydrogenated tropical fat.

38. (Previously Presented) The method according to claim 23, wherein the aqueous ice cream

precursor phase comprises a surface active, water soluble emulsifier.

39. (Previously Presented) The method according to claim 23, wherein the aqueous ice cream

precursor phase comprises non-fat dry milk solids and sugar.

40. (Canceled)

41. (Previously Presented) The method according to claim 23, wherein the dispersion is

provided at below ambient temperature for gasification and freezing.

42.-43. (Canceled)

19

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

9. Evidence Appendix

None.

Applicant: Brian Edward BROOKER, et al. Appeal Brief Filed: November 2, 2010

10. Related Proceedings Appendix

None.